

Claims

- [c1] 1. A DNA molecule isolated from cotton tissue identified as SEQ ID NO:7.
- [c2] 2. A primer pair of DNA molecules comprising a sufficient length of contiguous nucleotides of SEQ ID NO:7 or complements thereof wherein a first DNA molecule of the primer pair resides in a transgene insert DNA sequence of SEQ ID NO:7 and a second DNA molecule of the primer pair resides in the cotton genomic DNA sequence of SEQ ID NO:7 and the pair of DNA molecules are useful as DNA nucleotide primers in a DNA amplification method.
- [c3] 3. A DNA molecule isolated from cotton tissue identified as SEQ ID NO:8.
- [c4] 4. A primer pair of DNA molecules comprising a sufficient length of contiguous nucleotides of SEQ ID NO:8 or complements thereof wherein a first DNA molecule of the primer pair resides in a transgene insert DNA sequence of SEQ ID NO:8 and a second DNA molecule of the primer pair resides in the cotton genomic DNA sequence of SEQ ID NO:8 and the pair of DNA molecules are useful as DNA nucleotide primers in a DNA amplification method.
- [c5] 5. A method of detecting the presence of DNA corresponding to the genomic/transgene DNA of cotton event PV-GHGT07(1445) event in a sample, the method comprising:
- (a) contacting the sample comprising cotton DNA with a primer pair of claim 2, that when used in a nucleic-acid amplification reaction with DNA from cotton event PV-GHGT07(1445), produces an amplicon that is diagnostic for cotton event PV-GHGT07(1445); and
 - (b) performing a nucleic acid amplification reaction, thereby producing the amplicon; and
 - (c) detecting the amplicon.
- [c6] 6. An isolated DNA molecule comprising the amplicon produced by the method of claim 5.
- [c7] 7. A DNA detection kit specific for genomic/transgene DNA of cotton event PV-GHGT07(1445) and its progeny comprising at least one DNA molecule of sufficient length of contiguous DNA polynucleotides to function in a DNA detection method,

that is homologous or complementary to SEQ ID NO:7.

- [c8] 8. A method of detecting the presence of DNA corresponding to the genomic/transgene DNA of cotton event PV-GHGT07(1445) event in a sample, the method comprising:
- (a) contacting the sample comprising cotton DNA with a primer pair of claim 4, that when used in a nucleic-acid amplification reaction with DNA from cotton event PV-GHGT07(1445), produces an amplicon that is diagnostic for cotton event PV-GHGT07(1445); and
 - (b) performing a nucleic acid amplification reaction, thereby producing the amplicon; and
 - (c) detecting the amplicon.
- [c9] 9. An isolated DNA molecule comprising the amplicon produced by the method of claim 8.
- [c10] 10. A DNA detection kit specific for genomic/transgene DNA of cotton event PV-GHGT07(1445) and its progeny comprising at least one DNA molecule of sufficient length of contiguous DNA polynucleotides to function in a DNA detection method, that is homologous or complementary to SEQ ID NO:8.
- [c11] 11. A method of detecting the presence of a genomic/transgene DNA corresponding to the PV-GHGT07(1445) event in a sample, the method comprising:
- (a) contacting the sample comprising cotton DNA with a polynucleotide probe that hybridizes under stringent hybridization conditions with DNA from cotton event PV-GHGT07(1445) and does not hybridize under the stringent hybridization conditions with a non PV-GHGT07(1445) cotton plant DNA; and
 - (b) subjecting the sample and probe to stringent hybridization conditions;
 - (c) detecting hybridization of the probe to the DNA.
- [c12] 12. An isolated DNA molecule comprising a genomic/transgene DNA junction sequence of cotton event PV-GHGT07(1445) identified as SEQ ID NO:5 or DNA molecules substantially homologous to said DNA molecule or complements thereof.
- [c13] 13. An isolated DNA molecule comprising a genomic/transgene DNA junction sequence of cotton event PV-GHGT07(1445) identified as SEQ ID NO:6 or DNA

molecules substantially homologous to said DNA molecule or complements thereof.

[c14] 14. A method of breeding a cotton plant comprising a glyphosate tolerant trait that is genetically linked to a complement of a marker nucleic acid, wherein said marker nucleic acid molecule is SEQ ID NO:5 or SEQ ID NO:6 or complements thereof.

[c15] 15. A method of determining the genomic/transgene DNA zygosity of the progeny of cotton Plant PV-GHGT07(1445) comprising:

- (a) contacting the sample comprising cotton DNA with a primer set comprising SEQ ID NO:9, SEQ ID NO:11 and SEQ ID NO:12, that when used in a nucleic-acid amplification reaction with genomic DNA from cotton event PV-GHGT07(1445), produces a first amplicon that is diagnostic for cotton event PV-GHGT07(1445); and
- (b) performing a nucleic acid amplification reaction, thereby producing the first amplicon; and
- (c) detecting the first amplicon; and
- (d) contacting the sample comprising cotton DNA with said primer set, that when used in a nucleic-acid amplification reaction with genomic DNA from cotton plants produces a second amplicon comprising the native cotton genomic DNA homologous to the cotton genomic region of a transgene insertion identified as cotton event PV-GHGT07(1445); and
- (e) performing a nucleic acid amplification reaction, thereby producing the second amplicon; and
- (f) detecting the second amplicon; and
- (g) comparing the first and second amplicons in a sample, wherein the presence of both amplicons indicates the sample is heterozygous for the transgene insertion.

[c16] 16. An isolated DNA nucleotide primer sequence comprising SEQ ID NO:9 or its complement.

[c17] 17. An isolated DNA nucleotide primer sequence comprising SEQ ID NO:10 or its complement.

[c18] 18. An isolated DNA nucleotide primer sequence comprising SEQ ID NO:11 or its complement.

- [c19] 19. An isolated DNA nucleotide primer sequence comprising SEQ ID NO:12 or its complement.
- [c20] 20. An isolated DNA molecule comprising the first amplicon produced by the method of claim 15.
- [c21] 21. An isolated DNA molecule comprising the second amplicon produced by the method of claim 15.

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